Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 14 (6): 1071–1076
https://doi.org/10.15560/14.6.1071

PENSOFT

First records of the family Scoloplacidae (Siluriformes, Loricarioidei) in Colombia, including a range expansion of *Scoloplax baileyi* Rocha, Lazzarotto & Py-Daniel, 2012

Juan G. Albornoz-Garzón[1, 2], Cristhian C. Conde-Saldaña[2, 3], Astrid Acosta-Santos[4], Jorge E. García-Melo[2, 5], Edwin Agudelo[3], Francisco A. Villa-Navarro[2], Carlos DoNascimiento[1]

1 Colecciones Biológicas, Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Villa de Leyva, Boyacá, Colombia. **2** Universidad del Tolima, Departamento de Biología, Grupo de Investigación en Zoología, Ibagué, Tolima, Colombia. **3** Departamento de Morfologia, Instituto de Biociências, Universidade Estadual Paulista, Campus de Botucatu, Botucatu, SP, Brazil. **4** Instituto Amazónico de Investigaciones Científicas SINCHI, Leticia, Amazonas, Colombia. **5** Laboratorio de Ictiología, Unidad de Ecología y Sistemática, Departamento de Biología, Facultad de Ciencias, Pontificia Universidad Javeriana, Bogotá, Colombia.
Corresponding author: Juan G. Albornoz-Garzón, jalbornoz@humboldt.org.co

Abstract
The Neotropical family Scoloplacidae is a monogeneric group of miniature freshwater catfishes that includes 6 species. *Scoloplax dicra* has the widest distribution across the Amazon basin, except in the western upper portions. We collected 3 specimens from localities close to Leticia in Colombia, corresponding to *S. baileyi* and *S. dicra*, constituting the westernmost records of the family for the Amazon basin and the first for Colombia.

Key words
Amazon, Neotropical region, South America, Tarapoto wetlands.

Academic editor: Gabriela Echevarría-Diaz | Received 24 August 2018 | Accepted 1 November 2018 | Published 16 November 2018

Citation: Albornoz-Garzón JG, Conde-Saldaña CC, Acosta-Santos A, García-Melo JE, Agudelo E, Villa-Navarro FA, DoNascimiento C (2018) First records of the family Scoloplacidae (Siluriformes, Loricarioidei) in Colombia, including a range expansion of *Scoloplax baileyi* Rocha, Lazzarotto & Py-Daniel, 2012. Check List 14 (6): 1071–1076. https://doi.org/10.15560/14.6.1071

Introduction

The Neotropical family Scoloplacidae is a group of miniature catfishes comprising 6 species: *Scoloplax baileyi* Rocha, Lazzarotto & Py-Daniel, 2012, *S. baskini* Rocha, de Oliveira & Rapp Py-Daniel, 2008, *S. dicra* Bailey & Baskin, 1976, *S. distolothrix* Schaefer, Weitzman & Bristki, 1989, *S. dolicholophia* Schaefer, Weitzman & Britzki, 1989, and *S. empousa* Schaefer, Weitzman & Britski, 1989. The members of Scoloplacidae are recognized by the presence of a conspicuous shield-shaped rostral plate bearing multiple large and recurved odontodes (Rocha et al. 2008, 2012, Schaefer, 2003). The family is distributed across the Paraná–Paraguay and Amazon basins (Rocha et al. 2012). In the Amazon basin is only known from the Araguaia, Xingu, lower Japurá (Caquetá), middle Juruá, upper and middle Purus, Negro, Solimões, Tapajós, and Madeira drainages (de Oliveira et al. 2009, Rocha et al. 2008, 2012, Schaefer, 2003). In this paper, we report the presence of Scoloplacidae in the western Amazon of Colombia.

Methods

Samplings were performed with a small seine (3 m long × 2 m high; 0.5 mm mesh). The specimens were

Copyright *Albornoz-Garzón et al.* This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Figure 1. *Scoloplax dicra*: caño Cotocaño (CZUT-IC 17904: 13 mm SL).

collected as part of the projects "Proceso de designación RAMSAR Lagos de Tarapoto", "Consolidación de información biológica y socio-económica de los humedales de Tarapoto" (covered by the individual study permit for the collection of specimens of wild species of biological diversity for non-commercial purposes: Resolución DTA 0343 of 27 March of 2015, CORPOAMAZONIA), and "Conservación y aprovechamiento sostenible de la diversidad biológica, socioeconómica y cultural de la Amazonía Colombiana". Specimens were fixed in 10% formalin and preserved in 70% ethanol at Colección Ictiológica de la Amazonía Colombiana, Leticia, Colombia

Figure 2. *Scoloplax baileyi*: quebrada Yahuarcaca (CIACOL 3081: 14 mm SL).

(CIACOL) and Colección Zoológica de la Universidad del Tolima, Ictiología, Ibagué, Colombia (CZUT-IC). Taxonomic identifications were based on the original descriptions of *S. dicra* and *S. baileyi* (Bailey and Baskin 1976, Rocha et al. 2012) as well as redescription of *S. dicra* (Schaefer et al. 1989). All measurements were taken from digital photographs with a Leica MC 190 HD camera attached to a Leica S8APO stereomicroscope, using the Leica Application Suite v. 3.3.0 and are expressed as percentages of standard (SL) and head length (HL). Methodology and terminology for measurements and counts follow Rocha et al. (2012).

Results

***Scoloplax dicra* Bailey & Baskin, 1976**
Figure 1

Material examined. Colombia: Amazonas: Puerto Nariño: Tarapoto wetlands: caño Cotocaño (03°47′12.8″ S, 070°37′ 27.6″ W), 92 m a.s.l, 6 July 2014 (CZUT-IC 17904, 1 specimen, 13 mm SL).

***Scoloplax baileyi* Rocha, Lazzarotto & Rapp Py-Daniel, 2012**
Figure 2

Material examined: Colombia: Amazonas: Leticia: quebrada Yahuarcaca: La Ponderosa, km 8, vía Leticia-Tarapacá (04°08′35.20″ S, 069°56′26.03″ W), 65 m a.s.l, 22 November 2017 (CIACOL-3081, 2 specimens, 13.7–14 mm SL).

We collected 1 specimen of *Scoloplax dicra* in the caño Cotocaño, a small creek tributary of the río Boiahuasú, part of the Tarapoto wetlands. Currently the Tarapoto wetlands are a RAMSAR site which includes a complex of lakes, creeks and rivers (e.g. Atacuari, Loretoyacú, and Boiahuasú rivers) in Puerto Nariño, Colombia. Two additional specimens corresponding to *S. baileyi* were

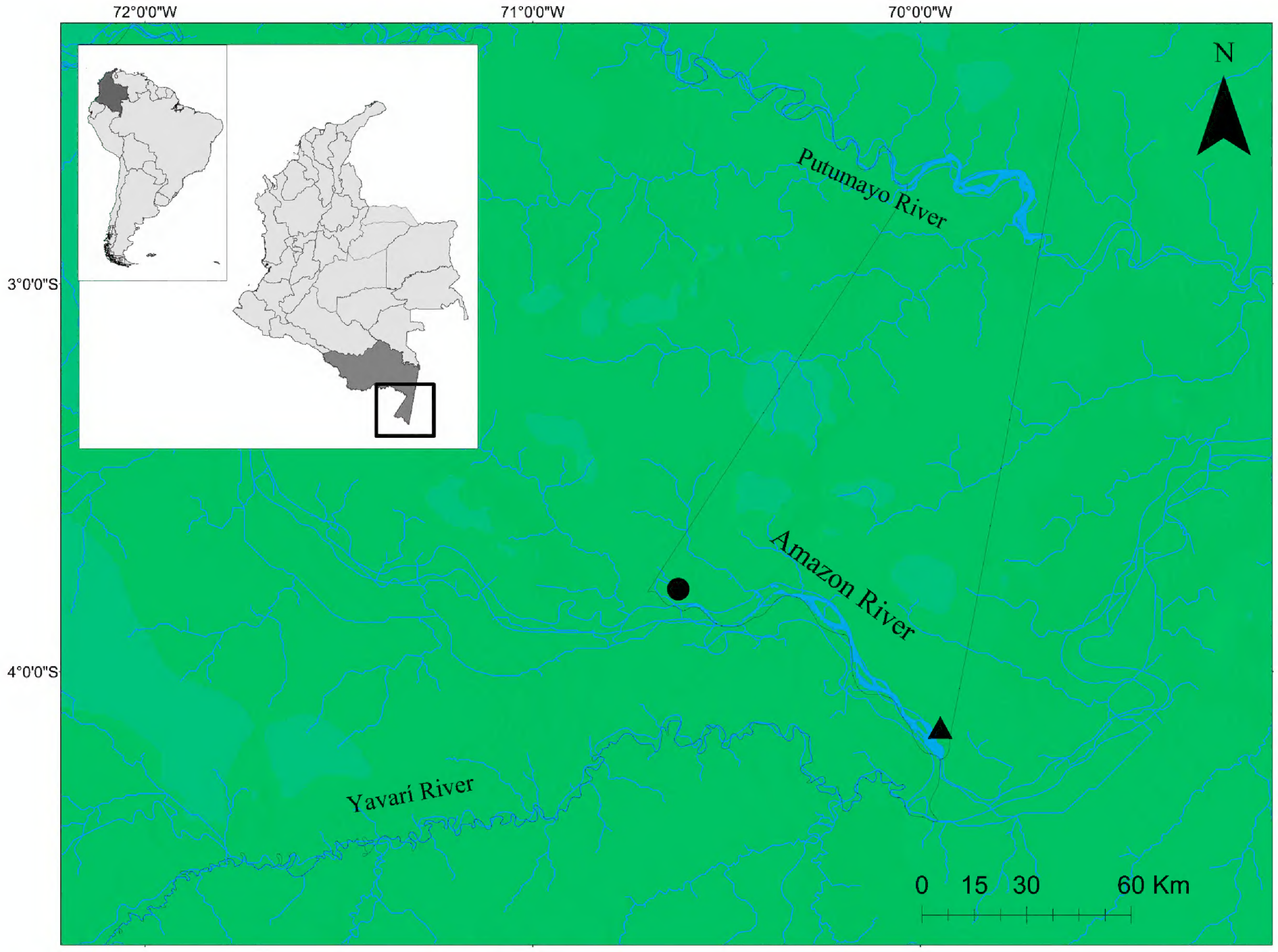

Figure 3. Records of *Scoloplax* in Colombia. Circle = *S. dicra* (caño Cotocaño), triangle = *S. baileyi* (quebrada Yahuarcaca).

collected from quebrada Yahuarcaca, which is a first order "terra firme" stream, near Leticia (Mojica et al. 2009). Both streams are tributaries of the Amazon (Fig. 3) and have similarities in their structural complexity, as slow current, blackwater, muddy bottom, and presence of riparian and submerged vegetation (Fig. 4).

Identification. The identification of the Tarapoto specimen as *Scoloplax dicra* was confirmed based on the presence of uniramous mental and mandibular barbels (only shared with *S. baskini* and *S. baileyi*) and a pair of bony plates with 3 odontodes, located between the pelvic-fin base and anus (Fig. 1, Table 1). This last character was proposed as an autapomorphy for *S. dicra* (Schaefer et al. 1989) and has not been recorded in any other *Scoloplax* species described since. On the other hand, the identification of the 2 specimens from quebrada Yahuarcaca as *S. baileyi* was confirmed based on the unequivocal presence of the main diagnostic external features of this species (Rocha et al. 2012), which are dentary teeth with 4 cusps, premaxillary teeth with 4, 3, or 2 cusps, basipterygia with enlarged anterolateral and central projections, giving a W-shape appearance in ventral view, dorsolateral plates large, closer to each other and joined at midline after the third pair, and midventral plates large and rectangular in shape, with 2 rows of odontodes along their external margins (Fig. 2, Table 1).

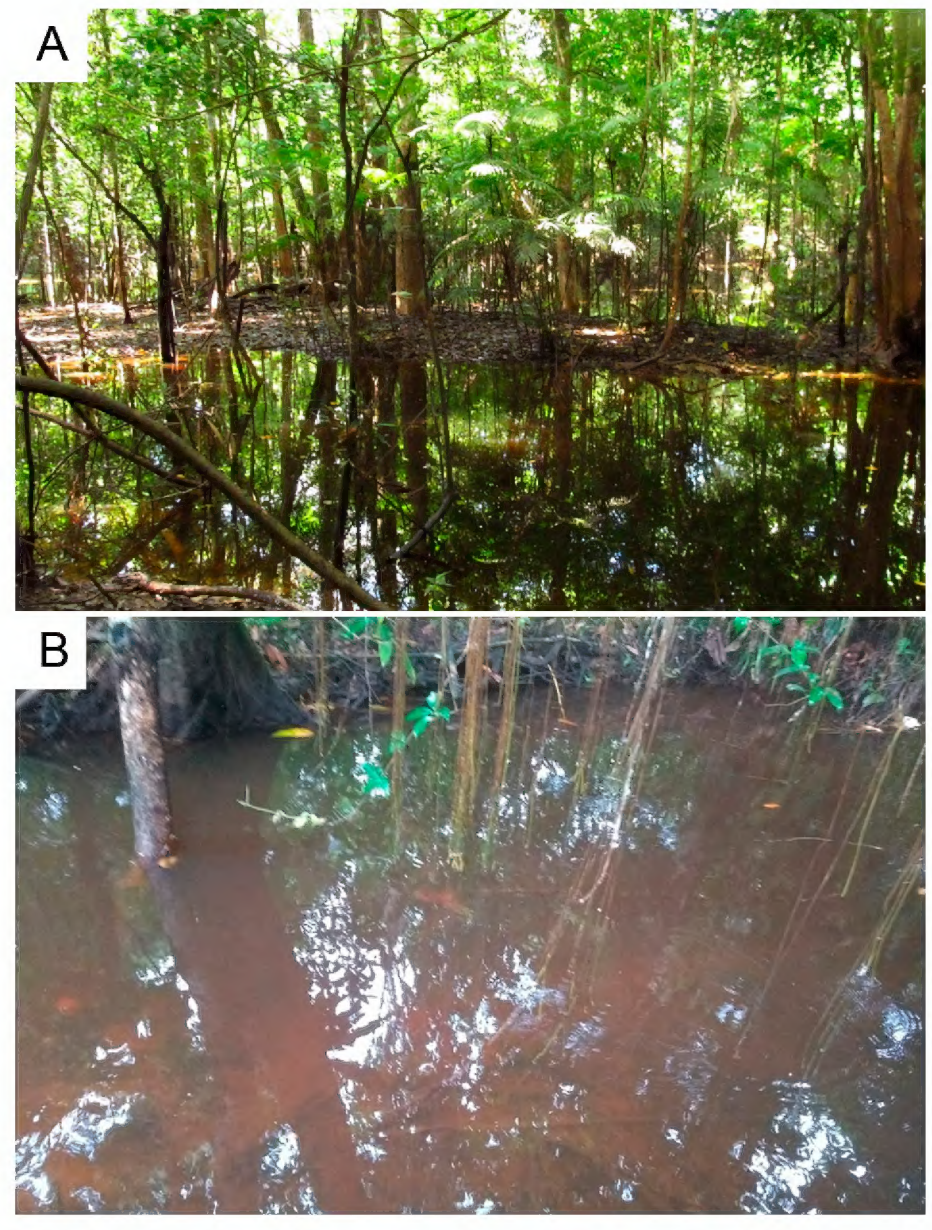

Figure 4. Habitat where specimens of *Scoloplax* were collected. **A.** Caño Cotocaño (CZUT-IC 17904). **B.** Quebrada Yahuarcaca (CIA-COL 3081).

Table 1. Morphometric and meristic values of *Scoloplax dicra* and *S. baileyi.*

	S. dicra	*S. baileyi* (*n* = 2)		
		Range	Mean	SD
Standard length (mm)	13	13.7–14	13.9	0.2
Percent of SL				
Predorsal length	40	31.3–32.9	32.1	1.1
Preanal length	67.3	61.2–62.7	62.0	1.1
Head length	24.9	19.9–22.7	21.3	1.9
Body width	31.7	29–29.1	29.0	0.1
Body depth	13.7	12.9–14	13.5	0.8
Percent of HL				
Interorbital distance	32.7	26.8–30.6	28.7	2.7
Dorsal fin	I,4	I,4		
Pectoral fin	I,6	I,6		
Pelvic fin	I,4	I,5		
Caudal fin	i,8,i	i,9,i		
Anal fin	i,4	i,5		
Dorsolateral plates	17	17–18		
Ventral midline plates	6	5		
Patch of odontodes anterior to orbit	6	6		
Patch of odontodes between pelvic and anal fins	3			

Discussion

Species of *Scoloplax* are found in slow-water habitats, with sandy or silty substrates that are covered with leaf litter and other plant debris (Sazima et al. 2000, Rocha et al. 2008). These characteristics were also recorded at the collecting sites of caño Cotocaño (CZUT-IC 17904) and quebrada Yahuarcaca (CIACOL 3081).

Scoloplax dicra is the species with the widest distribution in the family, encompassing the río Marañon/Ucayalí drainage of Peru, río Mamoré/Guaporé of Brazil, lower basin of the rio Negro, in its northernmost distribution, as well as the upper rio Madeira, tributaries of rio Solimões, rio Purus and rio Juruá basins (Schaefer et al. 1989, Rocha et al. 2012). Thus, the Colombian record here presented agrees with this distribution pattern. On the other hand, *S. baileyi* was known from small tributaries of the rio Unini basin and from the Anavilhanas Archipelago in the lower rio Negro basin. Rocha et al. (2012) suggested a more widespread distribution throughout the entire rio Negro basin, based on the observation of the widely separated collecting localities. However, our record from Colombia significantly expands the distribution of this species beyond the rio Negro basin by including a tributary of the rio Solimões.

A previous record of *S. baileyi* from the middle Amazon basin in Colombia (rio Solimões) was found by Galvis et al. (2006) to represent a misidentification of *Hoplomyzon papillatus* Stewart, 1985 (misspelled as *Hoplomyzon papilatus*), a member of the unrelated catfish family Aspredinidae. The drawings (dorsal views of trunk and head; Galvis et al. 2006: 311, fig. 168a, b), photograph (dorsal view of specimen showing coloration pattern, p. 507, pl. 82c), and description (pp. 311–312) are informative enough and unambiguous for recognizing this record as a scoloplacid catfish (dorsolateral series of odontode-bearing plates and shield-shaped rostral plate bearing numerous large, recurved odontodes) and as *S. baileyi* (uniramous mandibular barbels, dorsolateral plates large and joined at midline, as well as details of its general aspect and coloration pattern). Similar to our new record, the 3 specimens (ICN-MHN 6175, 6285) reported by Galvis et al. (2006) were collected in a terra firme stream in the surroundings of Leticia, the capital city of the Colombian department of Amazonas.

Acknowledgements

JGAG, CCCS and FAVN are grateful to S. Usma-Oviedo (WWF-Colombia) and F. Trujillo (Fundación Omacha) who joined forces with local indigenous groups to organize the expeditions that served as basis for the declaration of the Tarapoto wetlands as a RAMSAR protected figure. AAS and EA thank F.C.T. Lima, C. Moreira, G. N. Salvador, and N. Flausino Jr who helped collect the specimens from quebrada Yahuarcaca. This manuscript was enriched and improved by the helpful comments from G. Echevarría-Diaz and M. Rocha.

Authors' Contributions

CCCS, FAVN, AAS, and EA collected the specimens; CCCS, JGAG, and CD identified the specimens; CCCS, AAS, JGAG, and CD obtained anatomical data; JEGM photographed the specimens; JGAG, CCCS, AAS, FAVN and CD wrote the manuscript; all authors reviewed the text.

References

Bailey RM, Baskin JN (1976) *Scoloplax dicra*, a new armored catfish from the Bolivian Amazon. Occasional Papers of the Museum of Zoology University of Michigan 674: 1–14.

de Oliveira RR, Rocha MS, Anjos MB, Zuanon J, Rapp Py-Daniel L (2009) Fish fauna of small streams of the Catua-Ipixuna Extractive Reserve, state of Amazonas, Brazil. Check List 5 (2): 154–172. https://doi.org/10.15560/5.2.154

Galvis G, Mojica JI, Duque SR, Castellanos C, Sánchez-Duarte P, Arce M, Gutiérrez A, Jiménez LF, Santos M, Vejarano S, Arbeláez F, Prieto E, Leiva M (2006) Peces del medio Amazonas. Región de Leticia. Serie de Guías Tropicales de Campo N° 5. Conservación Internacional, Editorial Panamericana, Formas e Impresos, Bogotá, 548 pp.

Mojica JI, Castellanos C, Lobón-Cerviá J (2009) High temporal species turnover enhances the complexity of fish assemblages in Amazonian terra firme streams. Ecology of Freshwater Fish 18 (4): 520–526. https://doi.org/10.1111/j.1600-0633.2009.00382.x

Rocha MS, Oliveira RR, Rapp Py-Daniel L (2008) *Scoloplax baskini*: a new spiny dwarf catfish from Rio Aripuanã, Amazonas, Brazil (Loricarioidei: Scoloplacidae). Neotropical Ichthyology 6: 323–328. https://doi.org/10.1590/S1679-62252008000300005

Rocha MS, Lazzarotto H, Py-Daniel, L (2012) A new species of *Scoloplax* with a remarkable new tooth morphology within Loricarioidea (Siluriformes: Scoloplacidae). Copeia 2012 (4): 670–677. https://doi.org/10.1643/CI-11-142

Sazima I, Machado FA, Zuanon JAS (2000) Natural history of *Scolo-*

plax empousa (Scoloplacidae), a minute spiny catfish from the Pantanal in western Brazil. Ichthyological Exploration of Freshwaters 11 (1): 89–96.

Schaefer SA, Weitzman SH, Britski HA (1989) Review of the Neotropical catfish genus *Scoloplax* (Pisces: Loricarioidea: Scoloplacidae) with comments on reductive characters in phylogenetic analysis. Proceedings of the Academy of Natural Sciences of Philadelphia 141: 181–211.

Schaefer SA (2003) Family Scoloplacidae (Spiny dwarf catfishes). In: Reis RE, Kullander SO, Ferraris CJ Jr (Eds) Checklist of the Freshwater Fishes of the South and Central America. Edipucrs, Porto Alegre, Brazil, 310–311.